

# WORKING DRAFT

## *Personal Protective Equipment (Percutaneous—Garments)*

### General

**Name**

**ID# 1**

***STEPO Chemical Protective Suit (Totally Encapsulating)***



**Technology**

Impermeable; primary material: fluoropolymer/aramid fiber multi-laminate; reinforcement patches: fluoropolymer/glass fiber multi-laminate; visor: FEP with PVC overlay; glove: Neoprene/butyl

**Stock Number**

Small (S): 8415-01-452-6772

Medium (M): 8415-01-452-8631

Large (L): 8415-01-454-1627

X-large (XL): 8415-01-452-8629

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Totally encapsulating suit is compatible with variety of SCBAs (open and closed circuit), a personal ice cooling system (PICS) and communications equipment

**Availability**

Fielding in process (December 1999 through July 2002). Army EOD units, technical escort units and chemical storage sites will be fielded equipment

**Current User(s)**

EOD Units, Technical Escort Units, and Chemical Activities

**Manufacturer**

Chemfab Corporation

701 Daniel Webster Highway

Merrimack, NH 03054

603-424-9000 (Tel)

POC: Mark Weber (Program Manager)

**Manufacturer Type**

Domestic

**Developer**

GEOMET Technologies, Inc., Germantown, MD and Natick Research Development and Engineering Center (NRDEC), Kansas Street, Natick, MA

**Source**

GEOMET Technologies, Inc.

**Certification**

Type Classified by U.S. Army, 1997

### Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve: GB and VX; blister: HD and L

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## **Biological Warfare (BW) Agents Protected Against**

No testing conducted against BW agents. However, the suit is designed to protect against CW agents and industrial chemicals, therefore it is a safe assumption that the suit, when worn with a supplied air respirator, will provide exceptional protection against BW agents.

## **Toxic Industrial Materials (TIMs) Protected Against**

Suit tested against industrial chemicals listed in NFPA 1991, 1994 edition (ASTM F1001). Suit also will provide protection from phosgene, hydrazine, caustic soda, diesel fuel, kerosene, JP-4, and DS2.

## **Duration of Protection**

Four (4) h mission duration. May be reused five times after exposure to CW agent vapor and decontamination. If exposed to CW agent liquid must be decontaminated for disposal. Otherwise, may be reused as long as visual inspection and pressure test criteria is met.

## **Recommended Use(s)**

For use in unknown, highly toxic, oxygen deficient and IDLH environments where the highest level of respiratory and percutaneous protection is required

## **Physical Parameters**

### **Sizes Available**

4 sizes: S, M, L, and XL

### **Weight**

14 lb

### **Package Size and Volume**

24 in x 24 in x 12 in

### **Power Requirements**

None

### **Material Type**

Impermeable; primary material: fluoropolymer/aramid fiber multi-laminate; reinforcement patches: fluoropolymer/glass fiber multi-laminate; visor: FEP with PVC overlay; glove: neoprene/butyl

### **Construction Type**

Heat sealed seams with heat sealed fluoropolymer over tape

### **Color**

Light gray exterior and beige interior

## **Logistical Parameters**

### **Ease of Use**

Totally encapsulating suit is compatible with variety of SCBAs (open and closed circuit), a personal ice cooling system (PICS) and communications equipment

### **Consumables**

Paraffin wax to lubricate zipper. Cleaning/sanitizing supplies.

### **Maintenance Requirements**

Cleaning/sanitizing, visual inspection, zipper lubrication, and pressure test

### **Shelf Life**

None determined

### **Transportability**

Hard case (polyethylene) holds two suits or soft carry bag (holds one suit). Pressure test kit and patch kit also in molded plastic cases.

### **Operational Limitations**

Approved for use from -20 °F to +125 °F. Local SOP will determine any other restrictions. Moderately durable.

### **Environmental Conditions**

Contaminated suits must be decontaminated and disposed of in accordance with established procedures, regulations and laws

### **Unit Cost**

Suit: 1 to 10, \$5K; 11 to 45, \$4.7K; 46 to 200, \$4.2K; 201 to 500, \$4.2K; Pressure Test Kit: \$1.5K; Patch Kit: \$399 (all prices subject to change)

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<b>Maintenance Cost</b>	Five man hours per year use and eight man hours per year for quarterly test and inspection (based on information in TM 10-8415-231-12&P Maintenance Allocation Chart)
<b>Warranty</b>	1 yr
<b>Don/Doff Information</b>	One assistant required for donning. System can be doffed by user, however, an assistant would be beneficial.
<b>Use/Reuse</b>	Reusable. Exception: when exposed to CW agent liquid suit must be decontaminated for disposal.
<b>Launderability</b>	Decon in accordance with DA PAM 385-61 and AR 385-61. Do not use DS2 for decontamination if suit is to be reused. May be reused five times after exposure to CW agent vapor and decontamination. If exposed to CW agent liquid must be decontaminated for disposal. Not machine washable. Launder in tubs using nonphosphate soap and warm water.
<b>Accessories</b>	Laminate glove liner, neoprene socks, and coolant pass-through
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	Minimum of 8 h for operation. Additional 8 h for maintenance
<b>Training Available</b>	Yes
<b>Manuals Available</b>	Technical Manual TM 10-8415-231-12&P developed under government contract to support operation and maintenance of suit
<b>Surveillance Testing Requirements</b>	Visual Inspection and pressure test, IAW TM 10-8415-231-12&P
<b>Support Equipment</b>	Pressure test kit and patch kit available to maintain suit. Breathing Apparatus and Personal Ice Cooling System is required to put system into operation. Suit is compatible with 4 h, closed circuit rebreather, open-circuit SCBA, and SCBA with tethered air supply hose. Suit is also compatible with communications equipment.
<b>Testing Information</b>	NFPA data available from manufacture. CW agent data available from NRDEC (see attachment for data summary)
<b>Applicable Regulations</b>	EPA and Army Regulations. Safety precautions are identified in TM 10-8415-231-12&P.
<b>Health Hazards</b>	MSDS sheet available for suit material. The patching procedure is a heat-sealing process that may create fumes. Patching should be done in a ventilated area.
<b>Communications Interface Capability</b>	Yes. Compatible with radio systems utilizing ear microphone/speakers, throat microphones, and other microphones and speakers that integrate with respiratory protective face masks.
<b>EOD Compatibility</b>	Yes. Specifically designed for EOD units and toxic munitions handlers.

# WORKING DRAFT

## General

**Name**

**ID# 2**

*Tychem® 10000 Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100FAB (front entry)

100RAB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Butyl dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)  
Agents Protected Against**

Protects against all biological toxins and pathogens

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## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

### **Unit Cost**

\$782

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<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, s. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

**ID# 3**

*Tychem® 10000 Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100FAV (front entry)

100RAV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)  
Agents Protected Against**

Protects against all biological toxins and pathogens

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## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel)

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel) .

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

### **Unit Cost**

\$8.2K

### **Maintenance Cost**

Minimum labor cost for routine suit inspection

### **Warranty**

90 d for workmanship and materials



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## **Don/Doff Information**

Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.

## **Use/Reuse**

Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.

## **Laundryability**

Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.

## **Accessories**

Suit bag included. Pass-throughs available. Must be ordered separately.

## **Special Requirements**

### **Training Requirements**

No special training required

### **Training Available**

Yes. DuPont will provide specialized group training upon request

### **Manuals Available**

Technical data package and permeation guide with each suit

### **Surveillance Testing Requirements**

Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo

### **Support Equipment**

Appropriate respiratory, foot, and head protection. Pressure test kit

### **Testing Information**

Physical properties:

Basis weight (ASTM D3776–85) 9.5 oz/yd<sup>2</sup>

Thickness (ASTM D1777–64) 29 mils

Mullen burst (ASTM D3786–87) 204 psi

Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb

Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb

Permeation data available by calling 1–877–797–5907 or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel)

### **Applicable Regulations**

None

### **Health Hazards**

None

### **Communications Interface Capability**

Not applicable

### **EOD Compatibility**

Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

**ID# 4**

*Tychem® 10000 Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100FB (front entry)

100RB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Butyl dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

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## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

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<b>Unit Cost</b>	\$782
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 5**

*Tychem® 10000 Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100FV (front entry)  
100RV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
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800-845-6962 (Tel)  
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e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

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## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$818
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

**ID# 6**

*Tychem® 10000 EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100XFAB (front entry)

100XRAB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Butyl dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.



# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel)

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$973
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Laundryability</b>	Not applicable. Not intended for re-use after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 7**

*Tychem® 10000 EX Commander Level A Fully Encapsulating Suit*



## **Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

## **Stock Number**

100XFAV (front entry)  
100XRAV (rear entry)

## **Protection Type**

Level A, Percutaneous

## **Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Viton dual glove system, flat back for external air supply

## **Availability**

Commercially available

## **Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

## **Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

## **Manufacturer Type**

Domestic manufacturer

## **Developer**

DuPont Protective Apparel

## **Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

## **Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L).  
For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

# WORKING DRAFT

<b>Unit Cost</b>	\$1K
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears) prior to use
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a> .
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 8**

*Tychem® 10000 EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100XFB (front entry)  
100XRB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Butyl dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$973
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears) prior to use
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a> .
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit



# WORKING DRAFT

## General

**Name**

**ID# 9**

*Tychem® 10000 EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100XFV (front entry)  
100XRV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Viton dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$1K
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears) prior to use
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a> .
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

**ID# 10**

*Tychem® BR Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95FAB (front entry)

95RAB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Butyl dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters Sizes Available**

S through XXXXL. Additional sizes available upon request.

## **Weight**

11 lb/ctn and 1 unit/ctn

## **Package Size and Volume**

22 in L x 22 in W x 10 in H

## **Power Requirements**

Not applicable

## **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

## **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

## **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$573
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 11**

*Tychem® BR Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95FAV (front entry)  
95RAV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.



# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$600
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 12**

*Tychem® BR Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95FB (front entry)  
95RB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Butyl dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

# WORKING DRAFT

<b>Unit Cost</b>	\$573
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.1 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 17 mils Mullen burst (ASTM D3786–87) 110 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 107/71 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 47/27 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 13**

*Tychem® BR Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95FV (front entry)  
95RV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$600
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	None
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 14**

*Tychem® BR EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95XFAB (front entry)  
95XRAB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Butyl dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.



# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$764
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 15**

*Tychem® BR EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95XFAV (front entry)  
95XRAV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu face shield, fully encapsulating, Barrier®/Viton dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)**  
**Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$764
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 16**

*Tychem® BR EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95XFB (front entry)  
95XRB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Butyl dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$764
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit



# WORKING DRAFT

## General

**Name**  
**ID# 17**

*Tychem® BR EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

95XFV (front entry)  
95XRV (rear entry)

**Protection Type**  
**Equipment Category**

Level A, Percutaneous  
Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Viton dual glove system, expanded back for SCBA

**Availability**  
**Current User(s)**

Commercially available  
U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)**  
**Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)**  
**Agents Protected Against**

Protects against all biological toxins and pathogens

# WORKING DRAFT

## **Toxic Industrial Materials (TIMs) Protected Against**

A broad range of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 648, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
GB, HD, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
L: Greater than 2 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 636, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

Yellow or olive drab

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

# WORKING DRAFT

<b>Unit Cost</b>	\$782
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 6.6 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 16 mils Ball burst (ASTM D3787–89) 90 psi Breaking strength—Grab (md/xd) (ASTM D5034) 90/84 lb Tearing strength—Trapezoid (md/xd) (ASTM D5597) 19/19 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 18**

*Tychem® TK Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKFAB (front entry)  
TKRAB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, Barrier®/Butyl dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)**  
**Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)**  
**Agents Protected Against**

Protects against all biological toxins and pathogens

# WORKING DRAFT

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

# WORKING DRAFT

<b>Unit Cost</b>	\$1K
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

**ID# 19**

*Tychem® TK Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKFAV (front entry)

TKRAV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.



# WORKING DRAFT

<b>Unit Cost</b>	\$818
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 20**

*Tychem® TK Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKFB (front entry)  
TKRB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Butyl dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)**  
**Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$782
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 21**

*Tychem® TK Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKFV (front entry)  
TKRV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>  
For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$818
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Laundryability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

*Tychem® TK EX Commander Brigade Level A Ensemble, NFPA 1991 certified*

**ID# 22**



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKXF91 (front entry)  
TKXR91 (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, ensemble, NFPA 1991 certified, with aluminized fiberglass overcover, expanded back for SCBA, (Pana-Vu face shield)

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

NFPA 1991-2000 edition certified

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.



# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

16 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$2.1K
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 to 3 min. Average doffing time is less than 1 min.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 23**

*Tychem® TK EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKXFAB (front entry)  
TKXRAB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Butyl dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$973
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.

## **Special Requirements**

<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 24**

*Tychem® TK EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKXFAV (front entry)  
TKXRAV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® face shield, fully encapsulating, Barrier®/Viton dual glove system, flat back for external air supply

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$1K
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag included. Pass-throughs available. Must be ordered separately.
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, eye/face, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit



# WORKING DRAFT

## General

**Name**  
**ID# 25**

*Tychem® TK EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKXFB (front entry)  
TKXRB (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Butyl dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)  
Agents Protected Against**

Protects against all biological toxins and pathogens

# WORKING DRAFT

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

### **Unit Cost**

\$973

### **Maintenance Cost**

Minimum labor cost for routine suit inspection

# WORKING DRAFT

<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	None
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**

**ID# 26**

*Tychem® TK EX Commander Level A Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

TKXFV (front entry)

TKXRV (rear entry)

**Protection Type**

Level A, Percutaneous

**Equipment Category**

Level A, fully encapsulating, PVC/Teflon® Pana-Vu view face shield, fully encapsulating, Barrier®/Viton dual glove system, expanded back for SCBA

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel

U.S. Highway #1 North

McBee, SC 29101

800-845-6962 (Tel)

843-335-8599 (Fax)

e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel

e-mail: Mary-Ann.Daniel@usa.dupont.com

POC: M. A. Daniel

888-577-6960 (Tel)

**Certification**

Will meet the requirements of NFPA 1992-2000 edition

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Protects against all biological toxins and pathogens

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GB, HD, VX, and L: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage)  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 10 g/m<sup>2</sup>. For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 651, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Hot zone entry, crisis management, remediation, and gross decon

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

11 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

22 in L x 22 in W x 10 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond Max seam—sewn and taped both inside and out. This seam construction combines outstanding strength with excellent chemical/vapor protection.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection and pressure test (ASTM F1052), upon receipt and every 6 mo thereafter. Visual inspection prior to use.

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$1K
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Laundryability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	Suit bag
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears), and pressure testing (ASTM F1052) every 6 mo
<b>Support Equipment</b>	Appropriate respiratory, foot, eye/face, and head protection. Pressure test kit.
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776) 10.6 oz/yd <sup>2</sup> Thickness (ASTM D1777) 26 mils Ball burst (ASTM D3787) 187 psi Breaking strength—Grab (md/xd) (ASTM D15034) 188/180 lb Tearing strength—Trapezoid (md/xd) (ASTM D5733) 53/52 lb Permeation data available by calling 1-877-797-5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 27**

***Tychem® 10000 Level B Fully Encapsulating Suit***



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100132 (front entry)  
100133 (rear entry)

**Protection Type**

Level B, Percutaneous

**Equipment Category**

Level B, fully encapsulating, flat back for external air supply, PVC face shield

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)**  
**Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)**  
**Agents Protected Against**

Not specified

# WORKING DRAFT

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Emergency response, crisis management, remediation, and gross decon

### **Physical Parameters**

#### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

#### **Weight**

5 lb/ctn and 1 unit/ctn

#### **Package Size and Volume**

15 3/4 in L x 15 3/4 in W x 14 1/4 in H

#### **Power Requirements**

Not applicable

#### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

#### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

#### **Color**

High-visibility lime yellow

### **Logistical Parameters**

#### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

#### **Consumables**

None

#### **Maintenance Requirements**

Visual inspection prior to use.

#### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

#### **Transportability**

Easily transported

#### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

#### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

#### **Unit Cost**

\$219

#### **Maintenance Cost**

Minimum labor cost for routine suit inspection

#### **Warranty**

90 d for workmanship and materials



# WORKING DRAFT

## **Don/Doff Information**

Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.

## **Use/Reuse**

Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.

## **Launderability**

Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.

## **Accessories**

Suit bag included. Pass-throughs available. Must be ordered separately.

## **Special Requirements**

### **Training Requirements**

No special training required

### **Training Available**

Yes. DuPont will provide specialized group training upon request.

### **Manuals Available**

Technical data package and permeation guide with each suit

### **Surveillance Testing Requirements**

Visual inspection (for holes and tears) prior to use

### **Support Equipment**

Appropriate respiratory, foot, hand, and head protection

### **Testing Information**

Physical properties:  
Basis weight (ASTM D3776–85) 9.5 oz/yd<sup>2</sup>  
Thickness (ASTM D1777–64) 29 mils  
Mullen burst (ASTM D3786–87) 204 psi  
Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb  
Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb  
Permeation data available by calling 1–877–797–5907 or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel)

### **Applicable Regulations**

None

### **Health Hazards**

None

### **Communications Interface Capability**

Not applicable

### **EOD Compatibility**

Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 28**

***Tychem® 10000 Level B Fully Encapsulating Suit***



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

100135 (front entry)  
100635 (rear entry)

**Protection Type**

Level B, Percutaneous

**Equipment Category**

Level B, fully encapsulating, expanded back for SCBA, and PVC face shield

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

**Biological Warfare (BW)  
Agents Protected Against**

Not specified

# WORKING DRAFT

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Emergency response, crisis management, and remediation

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

5 lb/ctn and 1 unit/ctn

### **Package Size and Volume**

15 3/4 in L x 15 3/4 in W x 14 1/4 in H

### **Power Requirements**

Not applicable

### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

### **Color**

High-visibility lime yellow

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection prior to use

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

# WORKING DRAFT

<b>Unit Cost</b>	\$258
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	None
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears) prior to use
<b>Support Equipment</b>	Appropriate respiratory, foot, hand, and head protection
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 29**

*Tychem® 10000 Deluxe Level B Fully Encapsulating Suit*



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics. Pictured is stock # 100135.

**Stock Number**

100136 (front entry)  
100636 (rear entry)

**Protection Type**

Level B, Percutaneous

**Equipment Category**

Level B, fully encapsulating, expanded back for SCBA, and PVC/Teflon® face shield

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)  
Agents Protected Against**

Nerve agents (GA, GB, GD, and VX); blister agents (HD and L). For specific test results, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request Document 595.

# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Not specified

## **Toxic Industrial Materials (TIMs) Protected Against**

Excellent protection against a wide variety of TIMs. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Duration of Protection**

Fabric test data: Average breakthrough time  
GA, GB, GD, HD, L, and VX: Greater than 12 h at 100 g/m<sup>2</sup> (total coverage). For specific test data on TIMs, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 641, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel).

## **Recommended Use(s)**

Emergency response, crisis management, remediation, and gross decon

### **Physical Parameters**

#### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

#### **Weight**

8 lb/ctn and 1 unit/ctn

#### **Package Size and Volume**

22 in L x 22 in W x 10 in H

#### **Power Requirements**

Not applicable

#### **Material Type**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

#### **Construction Type**

Thermo Bond seam—sewn and taped. This exceptionally strong and chemical resistant seam construction provides a reliable barrier against heavy liquid splashes and rigorous seam stress.

#### **Color**

High-visibility lime yellow

### **Logistical Parameters**

#### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Compatible with most commercial SCBA equipment.

#### **Consumables**

None

#### **Maintenance Requirements**

Visual inspection prior to use

#### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

#### **Transportability**

Easily transported

#### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

# WORKING DRAFT

<b>Environmental Conditions</b>	Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.
<b>Unit Cost</b>	\$290
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to toxic chemicals. Dirt and dust can be manually removed with soap and water.
<b>Accessories</b>	None
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears) prior to use
<b>Support Equipment</b>	Appropriate respiratory, foot, hand, and head protection
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 9.5 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 29 mils Mullen burst (ASTM D3786–87) 204 psi Breaking strength—Grab (md/xd) (ASTM D1682–64, sec. 5.3) 197/178 lb Tearing strength—Trapezoid (md/xd) (ASTM D1117–80) 36/50 lb Permeation data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit

# WORKING DRAFT

## General

**Name**  
**ID# 30**

***Tyvek® Level B Fully Encapsulating Suit***



**Technology**

Selectively impermeable composite consisting of thermoplastic barrier films laminated to high strength thermoplastic nonwoven fabrics

**Stock Number**

14132 (front entry)  
14133 (rear entry)

**Protection Type**

Level B, Percutaneous

**Equipment Category**

Level B, fully encapsulating, flat back for external air supply, and polyester face shield

**Availability**

Commercially available

**Current User(s)**

U.S. government/military, local government/fire department, emergency response teams, general industry, remediation companies, and chemical manufacturing. Specific organizations currently using item available upon request.

**Manufacturer**

DuPont Tyvek® Protective Apparel  
U.S. Highway #1 North  
McBee, SC 29101  
800-845-6962 (Tel)  
843-335-8599 (Fax)  
e-mail: tyvekinf@usa.dupont.com

**Manufacturer Type**

Domestic manufacturer

**Developer**

DuPont Protective Apparel

**Source**

DuPont Tyvek® Protective Apparel  
e-mail: Mary-Ann.Daniel@usa.dupont.com  
POC: M. A. Daniel  
888-577-6960 (Tel)

**Certification**

Not applicable

## Operational Parameters

**Chemical Warfare (CW)**  
**Agents Protected Against**

Not applicable



# WORKING DRAFT

## **Biological Warfare (BW) Agents Protected Against**

Not specified

## **Toxic Industrial Materials (TIMs) Protected Against**

Hazardous dry particulates. For specific test data, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 610, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel) .

## **Duration of Protection**

For specific test data on hazardous dry particulates, call the DuPont Protective Apparel Fax-on-Demand Service at 800-558-9329 and request document 610, or go to [www.dupont.com/tyvek/protective-apparel](http://www.dupont.com/tyvek/protective-apparel) . No test data for CW agents.

## **Recommended Use(s)**

Crisis management (post decon); remediation

## **Physical Parameters**

### **Sizes Available**

S through XXXXL. Additional sizes available upon request.

### **Weight**

4 lb/ctn and 4 unit/ctn

### **Package Size and Volume**

16 in L x 10 1/4 in W x 14 1/8 in H

### **Power Requirements**

Not applicable

### **Material Type**

High density spunbonded polyethylene coated with polyethylene film

### **Construction Type**

Sewn seam—overedge serged seam construction offers protection against many dry particulates and light sprays

### **Color**

White

## **Logistical Parameters**

### **Ease of Use**

Ergonomically designed for maximum mobility and flexibility. Very flexible with wide range of vision. Fittings available for most commercially available pass-throughs.

### **Consumables**

None

### **Maintenance Requirements**

Visual inspection prior to use

### **Shelf Life**

Store in a cool, dry environment in original packaging. Manufacturer recommends designating “for training use only” after 5 yr of storage.

### **Transportability**

Easily transported

### **Operational Limitations**

Directly relates to the physical condition of user. Compatible with all commercial cooling systems.

### **Environmental Conditions**

Can be used in all common outdoor weather conditions and climates. Rain, snow, extreme temperatures and humidity will have no effect on the suit.

# WORKING DRAFT

<b>Unit Cost</b>	\$145/carton
<b>Maintenance Cost</b>	Minimum labor cost for routine suit inspection
<b>Warranty</b>	90 d for workmanship and materials
<b>Don/Doff Information</b>	Instructions for Don/Doff are included with each suit. Assistance required for donning and doffing. Average donning time 2 min and 2 s. Average doffing time is 33 s.
<b>Use/Reuse</b>	Discard after use. Decontamination specific to chemical exposure. Disposal per jurisdictional regulations. Can be incinerated provided the garment is not contaminated with hazardous or toxic materials.
<b>Launderability</b>	Not applicable. Not intended for reuse after exposure to hazardous materials.
<b>Accessories</b>	None
<b><u>Special Requirements</u></b>	
<b>Training Requirements</b>	No special training required
<b>Training Available</b>	Yes. DuPont will provide specialized group training upon request.
<b>Manuals Available</b>	Technical data package and permeation guide with each suit
<b>Surveillance Testing Requirements</b>	Visual inspection (for holes and tears) prior to use
<b>Support Equipment</b>	Appropriate respiratory, foot, hand, and head protection
<b>Testing Information</b>	Physical properties: Basis weight (ASTM D3776–85) 1.2 oz/yd <sup>2</sup> Thickness (ASTM D1777–64) 5.3 mils Strip tensile (in-lb) (ASTM D1682)(MD/CD) 7.9/7.6 Work to break (in-lb) (ASTM D1682) (MD/CD) 2.4/2.1 Tongue tear, lb (ASTM D2261 (MD/CD) Barrier data available by calling 1–877–797–5907 or go to <a href="http://www.dupont.com/tyvek/protective-apparel">www.dupont.com/tyvek/protective-apparel</a>
<b>Applicable Regulations</b>	None
<b>Health Hazards</b>	None
<b>Communications Interface Capability</b>	Not applicable
<b>EOD Compatibility</b>	Compatible with EOD suit